

WHAT IS CLAIMED IS:

1. A method for dispensing a total volume of liquid on a substrate, said method comprising:

disposing a plurality of spaced-apart droplets on said substrate, each of which has a unit volume associated therewith, with a spacing between adjacent droplets of a subset of said plurality of droplets being a function of a smallest unit volume associated with said subset.

2. The method as recited in claim 1 wherein disposing further includes dispensing said plurality of spaced-apart droplets so that each of said plurality of droplets has a quantity of liquid associated therewith that is substantially identical to the quantity of liquid associated with each of the remaining droplets of said plurality of droplets.

3. The method as recited in claim 1 wherein disposing further includes dispensing said plurality of droplets in first and second sets, with each of the droplets associated with said first subset having a first quantity of liquid associated therewith and each of the droplets associated with said second subset having a second quantity of liquid associated therewith, with said first quantity of liquid being greater than said second quantity.

4. The method as recited in claim 1 wherein gas is present proximate to said plurality of droplets and further including spreading said droplets to create a flow of said liquid in said plurality of droplets to prevent said gas from becoming trapped within said liquid.

5. The method as recited in claim 1 concurrently compressing a subset of said plurality of droplets along a first direction and subsequently compressing the remaining droplets of said plurality of droplets along a second direction, extending transversely to said first direction.

6. The method as recited in claim 1 wherein said droplets are arranged as a periodic two-dimensional array.

7. The method as recited in claim 1 wherein said substrate is selected from a set of substrates including a wafer, a template having a patterned surface and a template having a smooth surface.

8. The method as recited in claim 1 further including compressing said droplets between said substrate and a patterned region of a body, wherein for a fixed volume of said liquid said distance between adjacent droplets in a first direction being defined as a function of a length of said patterned region along said first dimension.

9. The method as recited in claim 1 wherein gas is present proximate to said plurality of droplets and further including compressing said droplets between said substrate and a patterned region of a body to create a flow of said liquid in said plurality of droplets to move said toward a perimeter of a area of said substrate in superimposition with said predetermined region.

10. The method as recited in claim 1 further including compressing said plurality of droplets between said substrate and a patterned region of a body to form a

contiguous layer of said liquid upon an area of said substrate in superimposition with said patterned region and solidifying the liquid in said contiguous layer to form a pattern therein that is complementary to said patterned region.

11. A method for dispensing a total volume of liquid on a substrate, said method comprising:

disposing a plurality of spaced-apart droplets on said substrate, each of which has a unit volume associated therewith;

spreading the liquid in said plurality of droplets over an area of said substrate; and

minimizing a distance traveled by the liquid associated with each of said plurality of droplets before contacting the liquid associated with an adjacent droplet.

12. The method as recited in claim 11 wherein minimizing further includes arranging said plurality of droplets in a pattern so that a spacing between adjacent droplets of a subset of said plurality of droplets is a function of a smallest unit volume associated with said subset.

13. The method as recited in claim 11 wherein disposing further includes dispensing said plurality of spaced-apart droplets so that each of said plurality of droplets has a quantity of liquid associated therewith that is substantially identical to the quantity of liquid associated with each of the remaining droplets of said plurality of droplets.

14. The method as recited in claim 11 wherein disposing further includes dispensing said plurality of

droplets in first and second sets, with each of the droplets associated with said first subset having a first quantity of liquid associated therewith and each of the droplets associated with said second subset having a second quantity of liquid associated therewith, with said first quantity of liquid being greater than said second quantity.

15. The method as recited in claim 11 wherein gas is present proximate to said plurality of droplets and further including compressing said droplets between said substrate and a patterned region of a body to create a flow of said liquid in said plurality of droplets to move said toward a perimeter of an area of said substrate in superimposition with said predetermined region.

16. The method as recited in claim 11 wherein disposing further includes disposing said plurality of droplets as a two-dimensional array and spreading further includes concurrently compressing a subset of said plurality of droplets along a first direction and subsequently compressing the remaining droplets of said plurality of droplets along a second direction, extending transversely to said first direction.

17. The method as recited in claim 11 further including wherein spreading further includes compressing said droplets between said substrate and a patterned region of a body, wherein for a fixed volume of said liquid said distance between adjacent droplets in a first direction being defined as a function of a length of said patterned region along said first dimension.

18. The method as recited in claim 11 wherein spreading further includes compressing said plurality of

droplets between said substrate and a patterned region of a body to form a contiguous layer of said liquid upon a region of said substrate in superimposition with said patterned region and solidifying the liquid in said contiguous layer to form said pattern therein that is complementary to said patterned region.

19. The method as recited in claim 11 wherein spreading further includes applying an electromagnetic field to said plurality of droplets.

20. The method as recited in claim 11 further including placing a body having a patterned region thereon proximate to said plurality of droplets, with spreading further including applying an electromagnetic field to said plurality of droplets to cause said droplets to conform to said patterned region.

21. A method for dispensing a total volume of liquid on a substrate, said method comprising:

placing a template, having a patterned region, proximate to said substrate;

disposing a plurality of spaced-apart droplets between said substrate and said template, with each of said plurality of spaced-apart droplets having a unit volume associated therewith;

spreading the liquid in said plurality of droplets over an area of said substrate, with said plurality of droplets being disposed on said substrate to minimize a distance traveled by the liquid associated with each of said plurality of droplets before contacting the liquid associated with an adjacent droplet.

22. The method as recited in claim 21 wherein minimizing further includes arranging said plurality of

droplets in a pattern so that a spacing between adjacent droplets of a subset of said plurality of droplets is a function of a smallest unit volume associated with said subset.

23. The method as recited in claim 21 wherein gas is present proximate to said plurality of droplets and further including compressing said droplets between said substrate and a patterned region of a body to create a flow of said liquid in said plurality of droplets to move said toward a perimeter of a area of said substrate in superimposition with said predetermined region.

24. The method as recited in claim 21 wherein disposing further includes disposing said plurality of droplets as a two-dimensional array and spreading further includes concurrently compressing, with said template, a subset of said plurality of droplets along a first direction and subsequently compressing the remaining droplets of said plurality of droplets along a second direction, extending transversely to said first direction.

25. The method as recited in claim 21 spreading further includes compressing said droplets between said substrate and said template, wherein for a fixed volume of said liquid said distance between adjacent droplets in a first direction being defined as a function of a length of said patterned region along said first dimension.

26. The method as recited in claim 21 wherein spreading further includes compressing said plurality of droplets between said substrate and said template to form a contiguous layer of said liquid upon a region of said

substrate in superimposition with said patterned region and solidifying the liquid in said contiguous layer to form said pattern therein that is complementary to said patterned region.

27. The method as recited in claim 21 wherein spreading further includes applying an electromagnetic field to said plurality of droplets.

28. The method as recited in claim 21 wherein spreading further includes applying an electromagnetic field to said plurality of droplets to cause said droplets to conform to said patterned region.